Figure 1

```
# Aligned_sequences: 2
# 1: Pcan057
# 2: Pcan057v1
# Matrix: EDNAFULL
# Gap_penalty: 100.0
# Extend_penalty: 0.05
#=======================================

Pcan057          1 aaacttcatcaaggtacntaaggttgtaaggttctcgggggggtagcggct     50

Pcan057v1        1                                                         0

Pcan057         51 tgcacacctcttgaagggcttcarccgggcccctggctccttcaggctgg     100

Pcan057v1        1                                                         0

Pcan057        101 ctgccttnatccgcttatccaatgattggataacggatgaggggagtctg     150

Pcan057v1        1                                                         0

Pcan057        151 ggtgccaggtgctttgcccgcatggcccatttcagtcacgctgcagtcct     200

Pcan057v1        1                                                         0

Pcan057        201 gtcaggaaaaaatcagtgttattctcattctacatatgagaaaactgagg     250

Pcan057v1        1                                                         0

Pcan057        251 cttgcagatataagggccaaaagttacacagctagtgagtgatggggctg     300

Pcan057v1        1                                                         0

Pcan057        301 agtttcagactccacagtctcttaaccaccaagcagcatgcccagagtag     350

Pcan057v1        1                                                         0

Pcan057        351 aggtgagaaggaaggagagagctgcggtccacatgagcatctggacctag     400

Pcan057v1        1                                                         0

Pcan057        401 catggacaactcactcctccctggctctcgctttgttcttgttgcgggtg     450

Pcan057v1        1                                                         0

Pcan057        451 tggtggtggtgggactcaaagacggtaaagatagctttctctcctccctg     500

Pcan057v1        1                                                         0

Pcan057        501 gggaatctgggggttgtttaaaaggcctgctcctcttttagaaggcagga     550

Pcan057v1        1                                                         0
```

Figure 1 Continued

```
Pcan057      551 gggccccaagggaagcagaaggtgacagaaggggaaagggtcctctgatc 600
Pcan057v1      1                                                   0
Pcan057      601 attgctc------------------------------------------- 607
                 |.|.|||
Pcan057v1      1 aattctcgagctcgtcgaccggtcgacgagctcgagggtcgacgagctcg  50
Pcan057      608 ---------------------------------------------------- 607
Pcan057v1     51 agggcgcgcgcccggcccccaccctcgcagcaccccgcgccccgcgccc 100
Pcan057      608 ---------------------------------------------------- 607
Pcan057v1    101 tcccagccgggtccagccggagccatggggccggagccgcagtgagcacc 150
Pcan057      608 ---------------------------------------------------- 607
Pcan057v1    151 atggagctggcggccttgtgccgctgggggctcctcctcgccctcttgcc 200
Pcan057      608 ---------------------------------------------------- 607
Pcan057v1    201 ccccggagccgcgagcacccaagtgtgcaccggcacagacatgaagctgc 250
Pcan057      608 ---------------------------------------------------- 607
Pcan057v1    251 ggctccctgccagtcccgagacccacctggacatgctccgccacctctac 300
Pcan057      608 ---------------------------------------------------- 607
Pcan057v1    301 cagggctgccaggtggtgcagggaaacctggaactcacctacctgcccac 350
Pcan057      608 ---------------------------------------------------- 607
Pcan057v1    351 caatgccagcctgtccttcctgcaggatatccaggaggtgcagggctacg 400
Pcan057      608 ---------------------------------------------------- 607
Pcan057v1    401 tgctcatcgctcacaaccaagtgaggcaggtcccactgcagaggctgcgg 450
Pcan057      608 ---------------------------------------------------- 607
Pcan057v1    451 attgtgcgaggcacccagctctttgaggacaactatgccctggccgtgct 500
Pcan057      608 ---------------------------------------------------- 607
Pcan057v1    501 agacaatggagacccgctgaacaataccacccctgtcacaggggcctccc 550
```

Figure 1 Continued

```
Pcan057     608 ----------------------------acccacagagatcttgaaa   627
                                            ||| ||||||||||||||||
Pcan057v1    51 caggaggcctgcgggagctgcagcttcgaagcctcacagagatcttgaaa   600

Pcan057     628 ggaggggtcttgatccagcggaacccccagctctgctaccaggacacgat   677
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   601 ggaggggtcttgatccagcggaacccccagctctgctaccaggacacgat   650

Pcan057     678 tttgtggaaggacatcttccacaagaacaaccagctggctctcacactga   727
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   651 tttgtggaaggacatcttccacaagaacaaccagctggctctcacactga   700

Pcan057     728 tagacaccaaccgctctcgggcctgccacccctgttctccgatgtgtaag   777
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   701 tagacaccaaccgctctcgggcctgccacccctgttctccgatgtgtaag   750

Pcan057     778 ggctcccgctgctggggagagagttctgaggattgtcagagcctgacgcg   827
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   751 ggctcccgctgctggggagagagttctgaggattgtcagagcctgacgcg   800

Pcan057     828 cactgtctgtgccggtggctgtgcccgctgcaaggggccactgcccactg   877
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   801 cactgtctgtgccggtggctgtgcccgctgcaaggggccactgcccactg   850

Pcan057     878 actgctgccatgagcagtgtgctgccggctgcacgggccccaagcactct   927
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   851 actgctgccatgagcagtgtgctgccggctgcacgggccccaagcactct   900

Pcan057     928 gactgcctggcctgcctccacttcaaccacagtggcatctgtgagctgca   977
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   901 gactgcctggcctgcctccacttcaaccacagtggcatctgtgagctgca   950

Pcan057     978 ctgcccagccctggtcacctacaacacagacacgtttgagtccatgccca  1027
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   951 ctgcccagccctggtcacctacaacacagacacgtttgagtccatgccca  1000

Pcan057    1028 atcccgagggccggtatacattcggcgccagctgtgtgactgcctgtccc  1077
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1  1001 atcccgagggccggtatacattcggcgccagctgtgtgactgcctgtccc  1050

Pcan057    1078 tacaactacctttctacggacgtgggatcctgcaccctcgtctgccccct  1127
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1  1051 tacaactacctttctacggacgtgggatcctgcaccctcgtctgccccct  1100

Pcan057    1128 gcacaaccaagaggtgacagcagaggatggaacacagcggtgtgagaagt  1177
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1  1101 gcacaaccaagaggtgacagcagaggatggaacacagcggtgtgagaagt  1150

Pcan057    1178 gcagcaagccctgtgcccgagtgtgctatggtctgggcatggagcacttg  1227
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1  1151 gcagcaagccctgtgcccgagtgtgctatggtctgggcatggagcacttg  1200
```

Figure 1 Continued

```
Pcan057     1228 cgagaggtgagggcagttaccagtgccaatatccaggagtttgctggctg 1277
                 ||||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   1201 cgagaggtgagggcagttaccagtgccaatatccaggagtttgctggctg 1250

Pcan057     1278 caagaagatctttgggagcctggcatttctgccggagagctttgatgggg 1327
                 ||||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   1251 caagaagatctttgggagcctggcatttctgccggagagctttgatgggg 1300

Pcan057     1328 acccagcctccaacactgccccgctccagccagagcagctccaagtgttt 1377
                 ||||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   1301 acccagcctccaacactgccccgctccagccagagcagctccaagtgttt 1350

Pcan057     1378 gagactctggaagagatcacaggttacctatacatctcagcatggccgga 1427
                 ||||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   1351 gagactctggaagagatcacaggttacctatacatctcagcatggccgga 1400

Pcan057     1428 cagcctgcctgacctcagcgtcttccagaacctgcaagtaatccggggac 1477
                 ||||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   1401 cagcctgcctgacctcagcgtcttccagaacctgcaagtaatccggggac 1450

Pcan057     1478 gaattctgcacaatggcgcctactcgctgaccctgcaagggctgggcatc 1527
                 ||||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   1451 gaattctgcacaatggcgcctactcgctgaccctgcaagggctgggcatc 1500

Pcan057     1528 agctggctggggctgcgctcactgagggaactgggcagtggactggccct 1577
                 ||||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   1501 agctggctggggctgcgctcactgagggaactgggcagtggactggccct 1550

Pcan057     1578 catccaccataacacccacctctgcttcgtgcacacggtgccctgggacc 1627
                 ||||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   1551 catccaccataacacccacctctgcttcgtgcacacggtgccctgggacc 1600

Pcan057     1628 agctctttcggaacccgcaccaagctctgctccacactgccaaccggcca 1677
                 ||||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   1601 agctctttcggaacccgcaccaagctctgctccacactgccaaccggcca 1650

Pcan057     1678 gaggacgagtgt------------------------------------- 1689
                 ||||||||||||
Pcan057v1   1651 gaggacgagtgtggtaagacagggagcccagtgtgcgcactccccatctg 1700

Pcan057     1690 ---------------------------------------------- 1689

Pcan057v1   1701 ccagcacacagcagtgcccaggggcccctggcagcagcgttcttggactt 1750

Pcan057     1690 ---------------------------------------------- 1689

Pcan057v1   1751 gtgcagactgcccgtctctgtgcaccttcttgactcagcacagctctgg 1800

Pcan057     1690 ---------------------------------------------- 1689
```

Figure 1 Continued

```
Pcan057v1  1801 ctggcttggcctcttggcatggcttctctagctgggtcctacctgccttg  1850

Pcan057    1690 ----------------------------------------------------  1689

Pcan057v1  1851 gcatccttccctccccctctgtttctgaaatctcagaactcttcctctcc  1900

Pcan057    1690 ----------------------------------------------------  1689

Pcan057v1  1901 ctacatcggccccacctgtccccacccctccagcccacagccatgcccac  1950

Pcan057    1690 ----------------------------------------------------  1689

Pcan057v1  1951 agccagttccctggttcacttggacctggggcctcccctaaaagtcccct  2000

Pcan057    1690 ----------------------gtgggcgagggcctggcctgccaccag  1716
                                      ||||||||||||||||||||||||||||
Pcan057v1  2001 gcggtcccttcctcctcactgcagtgggcgagggcctggcctgccaccag  2050

Pcan057    1717 ctgtgcgcccgagggcactgctggggtccagggcccacccagtgtgtcaa  1766
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1  2051 ctgtgcgcccgagggcactgctggggtccagggcccacccagtgtgtcaa  2100

Pcan057    1767 ctgcagccagttccttcggggccaggagtgcgtggaggaatgccgagtac  1816
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1  2101 ctgcagccagttccttcggggccaggagtgcgtggaggaatgccgagtac  2150

Pcan057    1817 tgcaggggctccccagggagtatgtgaatgccaggcactgtttgccgtgc  1866
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1  2151 tgcaggggctccccagggagtatgtgaatgccaggcactgtttgccgtgc  2200

Pcan057    1867 caccctgagtgtcagccccagaatggctcagtgacctgttttggaccgga  1916
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1  2201 caccctgagtgtcagccccagaatggctcagtgacctgttttggaccgga  2250

Pcan057    1917 ggctgaccagtgtgtggcctgtgcccactataaggaccctcccttctgcg  1966
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1  2251 ggctgaccagtgtgtggcctgtgcccactataaggaccctcccttctgcg  2300

Pcan057    1967 tggcccgctgccccagcggtgtgaaacctgacctctcctacatgcccatc  2016
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1  2301 tggcccgctgccccagcggtgtgaaacctgacctctcctacatgcccatc  2350

Pcan057    2017 tggaagtttccagatgaggagggcgcatgccagccttgccccatcaactg  2066
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1  2351 tggaagtttccagatgaggagggcgcatgccagccttgccccatcaactg  2400

Pcan057    2067 cacccactcctgtgtggacctggatgacaagggctgccccgccgagcaga  2116
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1  2401 cacccactcctgtgtggacctggatgacaagggctgccccgccgagcaga  2450
```

Figure 1 Continued

```
Pcan057     2117 gagccagccctctgacgtccatcatctctgcggtggttggcattctgctg   2166
                 ||||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   2451 gagccagccctctgacgtccatcatctctgcggtggttggcattctgctg   2500

Pcan057     2167 gtcgtggtcttgggggtggtctttgggatcctcatcaagcgacggcagca   2216
                 ||||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   2501 gtcgtggtcttgggggtggtctttgggatcctcatcaagcgacggcagca   2550

Pcan057     2217 gaagatccggaagtacacgatgcggagactgctgcaggaaacggagctgg   2266
                 ||||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   2551 gaagatccggaagtacacgatgcggagactgctgcaggaaacggagctgg   2600

Pcan057     2267 tggagccgctgacacctagcggagcgatgcccaaccaggcgcagatgcgg   2316
                 ||||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   2601 tggagccgctgacacctagcggagcgatgcccaaccaggcgcagatgcgg   2650

Pcan057     2317 atcctgaaagagacggagctgaggaaggtgaaggtgcttggatctggcgc   2366
                 ||||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   2651 atcctgaaagagacggagctgaggaaggtgaaggtgcttggatctggcgc   2700

Pcan057     2367 ttttggcacagtctacaagggcatctggatccctgatggggagaatgtga   2416
                 ||||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   2701 ttttggcacagtctacaagggcatctggatccctgatggggagaatgtga   2750

Pcan057     2417 aaattccagtggccatcaaagtgttgagggaaaacacatccccaaagcc   2466
                 ||||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   2751 aaattccagtggccatcaaagtgttgagggaaaacacatccccaaagcc   2800

Pcan057     2467 aacaaagaaatcttagacgaagcatacgtgatggctggtgtgggctcccc   2516
                 ||||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   2801 aacaaagaaatcttagacgaagcatacgtgatggctggtgtgggctcccc   2850

Pcan057     2517 atatgtctcccgccttctgggcatctgcctgacatccacggtgcagctgg   2566
                   ||||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   2851 atatgtctcccgccttctgggcatctgcctgacatccacggtgcagctgg   2900

Pcan057     2567 tgacacagcttatgccctatggctgcctcttagaccatgtccgggaaaac   2616
                 ||||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   2901 tgacacagcttatgccctatggctgcctcttagaccatgtccgggaaaac   2950

Pcan057     2617 cgcggacgcctgggctcccaggacctgctgaactggtgtatgcagattgc   2666
                 ||||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v    2951 cgcggacgcctgggctcccaggacctgctgaactggtgtatgcagattgc   3000

Pcan057     2667 caaggggatgagctacctggaggatgtgcggctcgtacacagggacttgg   2716
                 ||||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   3001 caaggggatgagctacctggaggatgtgcggctcgtacacagggacttgg   3050
```

Figure 1 Continued

```
Pcan057     2717 ccgctcggaacgtgctggtcaagagtcccaaccatgtcaaaattacagac 2766
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   3051 ccgctcggaacgtgctggtcaagagtcccaaccatgtcaaaattacagac 3100

Pcan057     2767 ttcgggctggctcggctgctggacattgacgagacagagtaccatgcaga 2816
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   3101 ttcgggctggctcggctgctggacattgacgagacagagtaccatgcaga 3150

Pcan057     2817 tgggggcaaggtgcccatcaagtggatggcgctggagtccattctccgcc 2866
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   3151 tgggggcaaggtgcccatcaagtggatggcgctggagtccattctccgcc 3200

Pcan057     2867 ggcggttcacccaccagagtgatgtgtggagttatggtgtgactgtgtgg 2916
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   3201 ggcggttcacccaccagagtgatgtgtggagttatggtgtgactgtgtgg 3250

Pcan057     2917 gagctgatgacttttggggccaaaccttacgatgggatcccagcccggga 2966
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   3251 gagctgatgacttttggggccaaaccttacgatgggatcccagcccggga 3300

Pcan057     2967 gatccctgacctgctggaaaaggggagcggctgccccagccccccatct 3016
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   3301 gatccctgacctgctggaaaaggggagcggctgccccagccccccatct 3350

Pcan057     3017 gcaccattgatgtctacatgatcatggtcaaatgttggatgattgactct 3066
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   3351 gcaccattgatgtctacatgatcatggtcaaatgttggatgattgactct 3400

Pcan057     3067 gaatgtcggccaagattccgggagttggtgtctgaattctcccgcatggc 3116
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   3401 gaatgtcggccaagattccgggagttggtgtctgaattctcccgcatggc 3450

Pcan057     3117 cagggacccccagcgctttgtggtcatccagaatgaggacttgggcccag 3166
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   3451 cagggacccccagcgctttgtggtcatccagaatgaggacttgggcccag 3500

Pcan057     3167 ccagtcccttggacagcaccttctaccgctcactgctggaggacgatgac 3216
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   3501 ccagtcccttggacagcaccttctaccgctcactgctggaggacgatgac 3550

Pcan057     3217 atgggggacctggtggatgctgaggagtatctggtaccccagcagggctt 3266
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   3551 atgggggacctggtggatgctgaggagtatctggtaccccagcagggctt 3600

Pcan057     3267 cttctgtccagaccctgccccgggcgctgggggcatggtccaccacaggc 3316
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   3601 cttctgtccagaccctgccccgggcgctgggggcatggtccaccacaggc 3650

Pcan057     3317 accgcagctcatctaccaggagtggcggtggggacctgacactagggctg 3366
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   3651 accgcagctcatctaccaggagtggcggtggggacctgacactagggctg 3700
```

Figure 1 Continued

```
Pcan057     3367 gagccctctgaagaggaggcccccaggtctccactggcaccctccgaagg   3416
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   3701 gagccctctgaagaggaggcccccaggtctccactggcaccctccgaagg   3750

Pcan057     3417 ggctggctccgatgtatttgatggtgacctgggaatgggggcagccaagg   3466
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   3751 ggctggctccgatgtatttgatggtgacctgggaatgggggcagccaagg   3800

Pcan057     3467 ggctgcaaagcctccccacacatgaccccagccctctacagcggtacagt   3516
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   3801 ggctgcaaagcctccccacacatgaccccagccctctacagcggtacagt   3850

Pcan057     3517 gaggaccccacagtacccctgccctctgagactgatggctacgttgcccc   3566
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   3851 gaggaccccacagtacccctgccctctgagactgatggctacgttgcccc   3900

Pcan057     3567 cctgacctgcagcccccagcctgaatatgtgaaccagccagatgttcggc   3616
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   3901 cctgacctgcagcccccagcctgaatatgtgaaccagccagatgttcggc   3950

Pcan057     3617 cccagcccccttcgccccgagagggccctctgcctgctgcccgacctgct   3666
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   3951 cccagcccccttcgccccgagagggccctctgcctgctgcccgacctgct   4000

Pcan057     3667 ggtgccactctggaaagggccaagactctctccccagggaagaatggggt   3716
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   4001 ggtgccactctggaaagggccaagactctctccccagggaagaatggggt   4050

Pcan057     3717 cgtcaaagacgtttttgcctttgggggtgccgtggagaaccccgagtact   3766
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   4051 cgtcaaagacgtttttgcctttgggggtgccgtggagaaccccgagtact   4100

Pcan057     3767 tgacaccccagggaggagctgcccctcagccccaccctcctcctgccttc   3816
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   4101 tgacaccccagggaggagctgcccctcagccccaccctcctcctgccttc   4150

Pcan057     3817 agcccagccttcgacaacctctattactgggaccaggacccaccagagcg   3866
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   4151 agcccagccttcgacaacctctattactgggaccaggacccaccagagcg   4200

Pcan057     3867 gggggctccacccagcaccttcaaagggacacctacggcagagaacccag   3916
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   4201 gggggctccacccagcaccttcaaagggacacctacggcagagaacccag   4250

Pcan057     3917 agtacctgggtctggacgtgccagtgtgaaccagaaggccaagtccgcag   3966
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   4251 agtacctgggtctggacgtgccagtgtgaaccagaaggccaagtccgcag   4300

Pcan057     3967 aagccctgatgtgtcctcagggagcagggaaggcctgacttctgctggca   4016
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   4301 aagccctgatgtgtcctcagggagcagggaaggcctgacttctgctggca   4350
```

Figure 1 Continued

```
Pcan057     4017 tcaagaggtgggagggccctccgaccacttccaggggaacctgccatgcc   4066
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   4351 tcaagaggtgggagggccctccgaccacttccaggggaacctgccatgcc   4400

Pcan057     4067 aggaacctgtcctaaggaaccttccttcctgcttgagttcccagatggct   4116
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   4401 aggaacctgtcctaaggaaccttccttcctgcttgagttcccagatggct   4450

Pcan057     4117 ggaaggggtccagcctcgttggaagaggaacagcactggggagtctttgt   4166
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   4451 ggaaggggtccagcctcgttggaagaggaacagcactggggagtctttgt   4500

Pcan057     4167 ggattctgaggccctgcccaatgagactctagggtccagtggatgccaca   4216
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   4501 ggattctgaggccctgcccaatgagactctagggtccagtggatgccaca   4550

Pcan057     4217 gcccagcttggccctttccttccagatcctgggtactgaaagccttaggg   4266
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   4551 gcccagcttggccctttccttccagatcctgggtactgaaagccttaggg   4600

Pcan057     4267 aagctggcctgagaggggaagcggccctaagggagtgtctaagaacaaaa   4316
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   4601 aagctggcctgagaggggaagcggccctaagggagtgtctaagaacaaaa   4650

Pcan057     4317 gcgacccattcagagactgtccctgaaacctagtactgccccccatgagg   4366
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   4651 gcgacccattcagagactgtccctgaaacctagtactgccccccatgagg   4700

Pcan057     4367 aaggaacagcaatggtgtcagtatccaggctttgtacagagtgcttttct   4416
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   4701 aaggaacagcaatggtgtcagtatccaggctttgtacagagtgcttttct   4750

Pcan057     4417 gtttagttttacttttttttgttttgtttttttaaagatgaaataaagac   4466
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   4751 gtttagttttacttttttttgttttgtttttttaaagatgaaataaagac   4800

Pcan057     4467 ccaggggggagaatgggtgttgtatggggaggcaagtgtgggggggtccttc   4516
                 ||||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   4801 ccaggggggagaatgggtgttgtatggggaggcaagtgtgggggggtccttc   4850

Pcan057     4517 tccacacccactttgtccatttgcaaatatattttggaaaaca   4559
                 ||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   4851 tccacacccactttgtccatttgcaaatatattttggaaaaca   4893
```

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Figure 2

```
# Aligned_sequences: 2
# 1: Pcan057.aa
# 2: Pcan057v1.aa
# Matrix: EBLOSUM62
# Gap_penalty: 100.0
# Extend_penalty: 0.01
#=======================================

Pcan057.aa       1                                                    0

Pcan057v1.aa     1 MELAALCRWGLLLALLPPGAASTQVCTGTDMKLRLPASPETHLDMLRHLY   50

Pcan057.aa       1                                                    0

Pcan057v1.aa    51 QGCQVVQGNLELTYLPTNASLSFLQDIQEVQGYVLIAHNQVRQVPLQRLR  100

Pcan057.aa       1                                   MGLSFRLHSLLTTKQ   15
                                                     .....:|.||
Pcan057v1.aa   101 IVRGTQLFEDNYALAVLDNGDPLNNTTPVTGASPGGLRELQLRSL-----   145

Pcan057.aa      16 HAQSRGEKEGESCGPHEHLDLAWTTHSSLALALFLLRVWWWWDSKTVKIA   65

Pcan057v1.aa   146 ---------------------------------------------------   145

Pcan057.aa      66 FSPPWGIWGLFKRPAPLLEGRRAPREAEGDRRGKGPLIIAHPTEILKGGV   115
                                                                 ||||||||
Pcan057v1.aa   146 ----------------------------------------TEILKGGV   153

Pcan057.aa     116 LIQRNPQLCYQDTILWKDIFHKNNQLALTLIDTNRSRACHPCSPMCKGSR   165
                   ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1.aa   154 LIQRNPQLCYQDTILWKDIFHKNNQLALTLIDTNRSRACHPCSPMCKGSR   203

Pcan057.aa     166 CWGESSEDCQSLTRTVCAGGCARCKGPLPTDCCHEQCAAGCTGPKHSDCL   215
                   ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1.aa   204 CWGESSEDCQSLTRTVCAGGCARCKGPLPTDCCHEQCAAGCTGPKHSDCL   253

Pcan057.aa     216 ACLHFNHSGICELHCPALVTYNTDTFESMPNPEGRYTFGASCVTACPYNY   265
                   ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1.aa   254 ACLHFNHSGICELHCPALVTYNTDTFESMPNPEGRYTFGASCVTACPYNY   303

Pcan057.aa     266 LSTDVGSCTLVCPLHNQEVTAEDGTQRCEKCSKPCARVCYGLGMEHLREV   315
                   ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1.aa   304 LSTDVGSCTLVCPLHNQEVTAEDGTQRCEKCSKPCARVCYGLGMEHLREV   353

Pcan057.aa     316 RAVTSANIQEFAGCKKIFGSLAFLPESFDGDPASNTAPLQPEQLQVFETL   365
                   ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1.aa   354 RAVTSANIQEFAGCKKIFGSLAFLPESFDGDPASNTAPLQPEQLQVFETL   403
```

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Figure 2 Continued

```
Pcan057.aa    366 EEITGYLYISAWPDSLPDLSVFQNLQVIRGRILHNGAYSLTLQGLGISWL  415
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1.aa  404 EEITGYLYISAWPDSLPDLSVFQNLQVIRGRILHNGAYSLTLQGLGISWL  453

Pcan057.aa    416 GLRSLRELGSGLALIHHNTHLCFVHTVPWDQLFRNPHQALLHTANRPEDE  465
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1.aa  454 GLRSLRELGSGLALIHHNTHLCFVHTVPWDQLFRNPHQALLHTANRPEDE  503

Pcan057.aa    466 CVGEGLACHQLCARGHCWGPGPTQCVNCSQFLRGQECVEECRVLQGLPRE  515
                  |...|.....|....|...|.........................|.....
Pcan057v1.aa  504 CGKTGSPVCALPICQHTAVPRGPWQQRSWTCADCPSLCTLLDSAQLWLAW  553

Pcan057.aa    516 YVNARHCLPCHPECQPQNGSVTCFGPEADQCVACAHYKDPPFCVARCPSG  565
                  .:.........:....|......
Pcan057v1.aa  554 PLGMASLAGSYLPWHPSLPLCF                              575

Pcan057.aa    566 VKPDLSYMPIWKFPDEEGACQPCPINCTHSCVDLDDKGCPAEQRASPLTS  615

Pcan057v1.aa  576                                                  575

Pcan057.aa    616 IISAVVGILLVVVLGVVFGILIKRRQQKIRKYTMRRLLQETELVEPLTPS  665

Pcan057v1.aa  576                                                  575

Pcan057.aa    666 GAMPNQAQMRILKETELRKVKVLGSGAFGTVYKGIWIPDGENVKIPVAIK  715

Pcan057v1.aa  576                                                  575

Pcan057.aa    716 VLRENTSPKANKEILDEAYVMAGVGSPYVSRLLGICLTSTVQLVTQLMPY  765

Pcan057v1.aa  576                                                  575

Pcan057.aa    766 GCLLDHVRENRGRLGSQDLLNWCMQIAKGMSYLEDVRLVHRDLAARNVLV  815

Pcan057v1.aa  576                                                  575

Pcan057.aa    816 KSPNHVKITDFGLARLLDIDETEYHADGGKVPIKWMALESILRRRFTHQS  865

Pcan057v1.aa  576                                                  575

Pcan057.aa    866 DVWSYGVTVWELMTFGAKPYDGIPAREIPDLLEKGERLPQPPICTIDVYM  915

Pcan057v1.aa  576                                                  575

Pcan057.aa    916 IMVKCWMIDSECRPRFRELVSEFSRMARDPQRFVVIQNEDLGPASPLDST  965

Pcan057v1.aa  576                                                  575

Pcan057.aa    966 FYRSLLEDDDMGDLVDAEEYLVPQQGFFCPDPAPGAGGMVHHRHRSSSTR 1015
```

Figure 2 Continued

```
Pcan057v1.aa 576                                                          575
Pcan057.aa  1016 SGGGDLTLGLEPSEEEAPRSPLAPSEGAGSDVFDGDLGMGAAKGLQSLPT   1065
Pcan057v1.aa 576                                                          575
Pcan057.aa  1066 HDPSPLQRYSEDPTVPLPSETDGYVAPLTCSPQPEYVNQPDVRPQPPSPR   1115
Pcan057v1.aa 576                                                          575
Pcan057.aa  1116 EGPLPAARPAGATLERAKTLSPGKNGVVKDVFAFGGAVENPEYLTPQGGA   1165
Pcan057v1.aa 576                                                          575
Pcan057.aa  1166 APQPHPPPAFSPAFDNLYYWDQDPPERGAPPSTFKGTPTAENPEYLGLDV   1215
Pcan057v1.aa 576                                                          575
Pcan057.aa  1216 PV   1217
Pcan057v1.aa 576       575
```

Figure 3

```
# Aligned_sequences: 2
# 1: Pro108
# 2: Pro177
# Matrix: EDNAFULL
# Gap_penalty: 100.0
# Extend_penalty: 0.01
#=======================================

Pro108       1                                                  gcacga      6
                                                                ...|..
Pro177       1 gggagggataggacggggagacaaagaaaggggtgcggcagcactgccag     50

Pro108       7 gggaagagggtgatccgacccggggaaggtcgctgggcagggcgagttgg     56
               ||||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177      51 gggaagagggtgatccgacccggggaaggtcgctgggcagggcgagttgg    100

Pro108      57 gaaagcggcagcccccgccgcccccgcagcccctttctcctctttctccc    106
               ||||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177     101 gaaagcggcagcccccgccgcccccgcagcccctttctcctctttctccc    150

Pro108     107 acgtcctatctgcctctcgctggaggccaggccgtgcagcatcgaagaca    156
               ||||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177     151 acgtcctatctgcctctcgctggaggccaggccgtgcagcatcgaagaca    200

Pro108     157 ggaggaactggagcctcattggccggcccggggcgccggcctcgggctta    206
               ||||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177     201 ggaggaactggagcctcattggccggcccggggcgccggcctcgggctta    250

Pro108     207 aataggagctccgggctctggctgggacccgaccgctgccggccgcgctc    256
               ||||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177     251 aataggagctccgggctctggctgggacccgaccgctgccggccgcgctc    300

Pro108     257 ccgctgctcctgccgggtgatggaaaaccccagcccggccgccgccctgg    306
               ||||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177     301 ccgctgctcctgccgggtgatggaaaaccccagcccggccgccgccctgg    350

Pro108     307 gcaaggccctctgcgctctcctcctggccactctcggcgccgccggccag    356
               ||||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177     351 gcaaggccctctgcgctctcctcctggccactctcggcgccgccggccag    400

Pro108     357 cctcttgggggagagtccatctgttccgccagagccccggccaaatacag    406
               ||||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177     401 cctcttgggggagagtccatctgttccgccagagccccggccaaatacag    450

Pro108     407 catcaccttcacgggcaagtggagccagacggccttccccaagcagtacc    456
               ||||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177     451 catcaccttcacgggcaagtggagccagacggccttccccaagcagtacc    500

Pro108     457 ccctgttccgcccccctgcgcagtggtcttcgctgctgggggccgcgcat    506
               ||||||||||||||||||||||||||||||||||||||||||||||||||||
```

Figure 3 Continued

```
Pro177   501 ccctgttccgccccccctgcgcagtggtcttcgctgctgggggccgcgcat   550

Pro108   507 agctccgactacagcatgtggaggaagaaccagtacgtcagtaacgggct   556
             ||||||||||||||||||||||||||||||||||||||||||||||||
Pro177   551 agctccgactacagcatgtggaggaagaaccagtacgtcagtaacgggct   600

Pro108   557 gcgcgactttgcggagcgcggcgaggcctgggcgctgatgaaggagatcg   606
             ||||||||||||||||||||||||||||||||||||||||||||||||
Pro177   601 gcgcgactttgcggagcgcggcgaggcctgggcgctgatgaaggagatcg   650

Pro108   607 aggcggcgggggaggcgctgcagagcgtgcacgcggtgttttcggcgccc   656
             ||||||||||||||||||||||||||||||||||||||||||||||||
Pro177   651 aggcggcgggggaggcgctgcagagcgtgcacgaggtgttttcggcgccc   700

Pro108   657 gccgtccccagcggcaccgggcagacgtcggcggagctggaggtgcagcg   706
             ||||||||||||||||||||||||||||||||||||||||||||||||
Pro177   701 gccgtccccagcggcaccgggcagacgtcggcggagctggaggtgcagcg   750

Pro108   707 caggcactcgctggtctcgtttgtggtgcgcatcgtgcccagccccgact   756
             ||||||||||||||||||||||||||||||||||||||||||||||||
Pro177   751 caggcactcgctggtctcgtttgtggtgcgcatcgtgcccagccccgact   800

Pro108   757 ggttcgtgggcgtggacagcctggacctgtgcgacggggaccgttggcgg   806
             ||||||||||||||||||||||||||||||||||||||||||||||||
Pro177   801 ggttcgtgggcgtggacagcctggacctgtgcgacggggaccgttggcgg   850

Pro108   807 gaacaggcggcgctggacctgtacccctacgacgccgggacggacagcgg   856
             ||||||||||||||||||||||||||||||||||||||||||||||||
Pro177   851 gaacaggcggcgctggacctgtacccctacgacgccgggacggacagcgg   900

Pro108   857 cttcaccttctcctcccccaacttcgccaccatcccgcaggacacggtga   906
             ||||||||||||||||||||||||||||||||||||||||||||||||
Pro177   901 cttcaccttctcctcccccaacttcgccaccatcccgcaggacacggtga   950

Pro108   907 ccgagataacgtcctcctctcccagccacccggccaactccttctactac   956
             ||||||||||||||||||||||||||||||||||||||||||||||||
Pro177   951 ccgagataacgtcctcctctcccagccacccggccaactccttctactac  1000

Pro108   957 ccgcggctgaaggccctgcctcccatcgccagggtgacactggtgcggct  1006
             ||||||||||||||||||||||||||||||||||||||.|||||||
Pro177  1001 ccgcggctgaaggccctgcctcccatcgccagggtgacactgctgcggct  1050

Pro108  1007 gcgacagagccccagggccttcatcctcccgccccagtcctgcccagca  1056
             ||||||||||||||||||||||||||||||||||||||||||||||||
Pro177  1051 gcgacagagccccagggccttcatcctcccgccccagtcctgcccagca  1100

Pro108  1057 gggacaatgagattgtagacagcgcct----------------------  1083
             |||||||||||||||||||||||||
Pro177  1101 gggacaatgagattgtagacagcgcctcaggtaacggacatacaggtcac  1150
```

Figure 3 Continued

Pro108	1084	----------	1083
Pro177	1151	atgggacacacagcagccccgaaccctgccacagggcgaccaccaaaccc	1200
Pro108	1084	----------	1083
Pro177	1201	gaacctaaggctctgagaaattccaagtagggattcgtagtgcgtactgc	1250
Pro108	1084	----------	1083
Pro177	1251	aagatggtgcctagaagatttaggattctgttgattcacacactgaagat	1300
Pro108	1084	----------	1083
Pro177	1301	gtgactcttgcacattatttgcagttgaaagcatcttacagggccacagc	1350
Pro108	1084	----------	1083
Pro177	1351	ccagaggaaagaatgaaaggaggctccagacagtacctgagagactctgt	1400
Pro108	1084	----------	1083
Pro177	1401	cctgtcagacacgcacccacaggtgacctgtgtgtcacagctgacaagga	1450
Pro108	1084	----------	1083
Pro177	1451	agcttgctaggatggccctgtgtggccaccgggtgacagctatgctgcag	1500
Pro108	1084	----------	1083
Pro177	1501	ggcacctgtgggggtctcgggacccagccaccacacagctcggggctctg	1550
Pro108	1084	----------	1083
Pro177	1551	ctcacaggcgccttggcctggggcggggcaggtgctgatgagcattctcc	1600
Pro108	1084	----------	1083
Pro177	1601	tagctcttccaggcacctgctggacagggcaggctgggaacgctggggcc	1650
Pro108	1084	----------	1083
Pro177	1651	gagtggcagttccctccctactcagctgggtggcagccactggcctcacg	1700
Pro108	1084	----------	1083
Pro177	1701	gagcgcctgtggtctggagcgcattgctgggtcgtgggtcagggcctgtt	1750
Pro108	1084	----------	1083

Figure 3 Continued

Pro177	1751	ggctctgggtctctgggtctcacctgatatgggtgtgggacagtcagtgt	1800
Pro108	1084	----------	1083
Pro177	1801	aggccccagacaacagcggacttcagactttcccgaggaggaactggagc	1850
Pro108	1084	----------	1083
Pro177	1851	ccaccaacctggccatgggccccgtcgtcctccaccctccatgttgctgg	1900
Pro108	1084	----------	1083
Pro177	1901	ctggagttgaggcaggtacggggccgccccacacctgccccccaagccat	1950
Pro108	1084	----------	1083
Pro177	1951	gtggtagggacagatgtcgtcttgaggagcagcagtaattacaagcttac	2000
Pro108	1084	----------	1083
Pro177	2001	tgtcagccgtccctggaagcaagggccaggtcaggtcagacaggaggccg	2050
Pro108	1084	----------	1083
Pro177	2051	cctggctggcgggaaccactccccagacagagactgtgcccagtcctggg	2100
Pro108	1084	----------	1083
Pro177	2101	tccctcctcatttgggatgaactgggcctccctgtgccagcctcggtgct	2150
Pro108	1084	----------	1083
Pro177	2151	gcccctgcccagtgcaggcttgggctcctcactcatttgtccacgcggat	2200
Pro108	1084	----------	1083
Pro177	2201	gccccattccaagcagatgtccccgagccacttacccaacaggcagacgt	2250
Pro108	1084	----------	1083
Pro177	2251	gccagcactgttcgtggtgtgcaactggtctggcgggaagagcccctcgt	2300
Pro108	1084	----------	1083
Pro177	2301	gggcagagggtccagagaggtgcggtttgccccacatttgggggcactgg	2350
Pro108	1084	----------	1083
Pro177	2351	gccacagtgggcaggggagcacgtggccagtgccctgggtctgccacgat	2400

Figure 3 Continued

```
Pro108   1084 ----------------------------------------------------  1083

Pro177   2401 gtgggagttccaccaccacagggacttgagcggcagctccggctcttacg   2450

Pro108   1084 ----------------------------------------------------  1083

Pro177   2451 tagaaacgcgcaactccagtccctaggttgtgtccgaggttgctatggtg   2500

Pro108   1084 ----------------------------------------------------  1083

Pro177   2501 ccatcccatcttgccgctcactctgcgactgtgcggagaaacgcaagtgc   2550

Pro108   1084 ----------------------------------------------------  1083

Pro177   2551 ccccgaagggtgggcgtggcctctgatgaatgcacacgttggtgggaggt   2600

Pro108   1084 ----------------------------------------------------  1083

Pro177   2601 ggcttccgtttgtacgaagcgcctcttcacgcgagcgttcacctcggtct   2650

Pro108   1084 ---------------cagttccagaaacgccgctggactgcgaggtctcc   1118
                             ||||||||||||||||||||||||||||||||||||
Pro177   2651 ccccttgcttggtccagttccagaaacgccgctggactgcgaggtctcc   2700

Pro108   1119 ctgtggtcgtcctggggactgtgcggaggccactgtgggaggctcgggac   1168
                ||||||||||||||||||||||||||||||||||||||||||||||||
Pro177   2701 ctgtggtcgtcctggggactgtgcggaggccactgtgggaggctcgggac   2750

Pro108   1169 caagagcaggactcgctacgtccgggtccagcccgccaacaacgggagcc   1218
                ||||||||||||||||||||||||||||||||||||||||||||||||
Pro177   2751 caagagcaggactcgctacgtccgggtccagcccgccaacaacgggagcc   2800

Pro108   1219 cctgccccgagctcgaagaagaggctgagtgcgtccctgataactgcgtc   1268
                ||||||||||||||||||||||||||||||||||||||||||||||||
Pro177   2801 cctgccccgagctcgaagaagaggctgagtgcgtccctgataactgcgtc   2850

Pro108   1269 taagaccagagccccgcagcccctgggg-ccccccggagccatggggtgtc   1317
                |||||||||||||||||||||||||| ||||||||||||||||||||
Pro177   2851 taagaccagagccccgcagcccctggggccccccggagccatggggtgtc   2900

Pro108   1318 gggggctcctgtgcaggctcatgctgcaggcggccga-ggcacaggggggt   1366
                |||||||||||||||||||||||||||||||||||| ||||||||||||
Pro177   2901 gggggctcctgtgcaggctcatgctgcaggcggccgagggcacaggggggt   2950

Pro108   1367 ttcgcgctgctcctgaccgcggtgaggccgcgccgaccatctctgcactg   1416
                ||||||||||||||||||||||||||||||||||||||||||||||||
Pro177   2951 ttcgcgctgctcctgaccgcggtgaggccgcgccgaccatctctgcactg   3000
```

Figure 3 Continued

```
Pro108    1417 aagggccctctggtggccggcacgggcattgggaaacagcctcctccttt   1466
               ||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177    3001 aagggccctctggtggccggcacgggcattgggaaacagcctcctccttt   3050

Pro108    1467 cccaaccttgcttcttaggggcccccgtgtcccgtctgctctcagcctcc   1516
               ||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177    3051 cccaaccttgcttcttaggggcccccgtgtcccgtctgctctcagcctcc   3100

Pro108    1517 tcctcctgcaggataaagtcatccccaaggctccagctactctaaattat   1566
               ||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177    3101 tcctcctgcaggataaagtcatccccaaggctccagctactctaaattat   3150

Pro108    1567 ggtctccttataagttattgctgctccaggagattgtccttcatcgtcca   1616
                |||||||||||||||||||||||||||||||||||||||||||||||||
Pro177    3151 -gtctccttataagttattgctgctccaggagattgtccttcatcgtcca   3199

Pro108    1617 ggggcctggctcccacgtggttgcagatacctcagacctggtgctctagg   1666
               ||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177    3200 ggggcctggctcccacgtggttgcagatacctcagacctggtgctctagg   3249

Pro108    1667 ctgtgctgagcccactctcccgagggcgcatccaagcgggggccacttga   1716
               ||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177    3250 ctgtgctgagcccactctcccgagggcgcatccaagcgggggccacttga   3299

Pro108    1717 gaagtgaataaatggggcggtttcggaagcgtcagtgtttccatgttatg   1766
               ||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177    3300 gaagtgaataaatggggcggtttcggaagcgtcagtgtttccatgttatg   3349

Pro108    1767 gatctctctgcgtttgaataaagactatctctgttgctcac        1807
               |||||||||||||||||||||||||||||||||||.
Pro177    3350 gatctctctgcgtttgaataaagactatctctgttgctcaaaaa    3393
```

Figure 4

```
Aligned_sequences: 2
# 1: PRO108.aa
# 2: PRO177.aa
# Matrix: EBLOSUM62
# Gap_penalty: 100.0
# Extend_penalty: 0.01
#=======================================

PRO108.aa     1 MENPSPAAALGKALCALLLATLGAAGQPLGGESICSARAPAKYSITFTGK      50
                ||||||||||||||||||||||||||||||||||||||||||||||||||
PRO177.aa     1 MENPSPAAALGKALCALLLATLGAAGQPLGGESICSARAPAKYSITFTGK      50

PRO108.aa    51 WSQTAFPKQYPLFRPPAQWSSLLGAAHSSDYSMWRKNQYVSNGLRDFAER     100
                ||||||||||||||||||||||||||||||||||||||||||||||||||
PRO177.aa    51 WSQTAFPKQYPLFRPPAQWSSLLGAAHSSDYSMWRKNQYVSNGLRDFAER     100

PRO108.aa   101 GEAWALMKEIEAAGEALQSVHAVFSAPAVPSGTGQTSAELEVQRRHSLVS     150
                ||||||||||||||||||||.||||||||||||||||||||||||||||
PRO177.aa   101 GEAWALMKEIEAAGEALQSVHEVFSAPAVPSGTGQTSAELEVQRRHSLVS     150

PRO108.aa   151 FVVRIVPSPDWFVGVDSLDLCDGDRWREQAALDLYPYDAGTDSGFTFSSP     200
                ||||||||||||||||||||||||||||||||||||||||||||||||||
PRO177.aa   151 FVVRIVPSPDWFVGVDSLDLCDGDRWREQAALDLYPYDAGTDSGFTFSSP     200

PRO108.aa   201 NFATIPQDTVTEITSSSPSHPANSFYYPRLKALPPIARVTLVRLRQSPRA     250
                ||||||||||||||||||||||||||||||||||||||:||||||||
PRO177.aa   201 NFATIPQDTVTEITSSSPSHPANSFYYPRLKALPPIARVTLLRLRQSPRA     250

PRO108.aa   251 FIPPAPVLPSRDNEIVDSASVPETPLDCEVSLWSSWGLCGGHCGRLGTKS     300
                ||||||||||||||||||.....:...:.....|..
PRO177.aa   251 FIPPAPVLPSRDNEIVDSASGNGHTGHMGHTAAPNPATGRPPNPNLRL       298

PRO108.aa   301 RTRYVRVQPANNGSPCPELEEEAECVPDNCV     331

PRO177.aa   299                                   298
```

Figure 5

```
# Aligned_sequences: 2
# 1: PRO108.aa
# 2: PRO177.orf
# Matrix: EBLOSUM62
# Gap_penalty: 100.0
# Extend_penalty: 0.01
#=======================================

PRO108.aa     1                                                      0

PRO177.orf    1 RCDSCTLFAVESILQGHSPEERMKGGSRQYLRDSVLSDTHPQVTCVSQLT     50

PRO108.aa     1                                                      0

PRO177.orf   51 RKLARMALCGHRVTAMLQGTCGGLGTQPPHSSGLCSQAPWPGAGQVLMSI    100

PRO108.aa     1                                                      0

PRO177.orf  101 LLALPGTCWTGQAGNAGAEWQFPPYSAGWQPLASRSACGLERIAGSWVRA    150

PRO108.aa     1                                                      0

PRO177.orf  151 CWLWVSGSHLIWVWDSQCRPQTTADFRLSRGGTGAHQPGHGPRRPPPSML    200

PRO108.aa     1                                                      0

PRO177.orf  201 LAGVEAGTGPPHTCPPSHVVGTDVVLRSSSNYKLTVSRPWKQGPGQVRQE    250

PRO108.aa     1                                                      0

PRO177.orf  251 AAWLAGTTPQTETVPSPGSLLIWDELGLPVPASVLPLPSAGLGSSLICPR    300

PRO108.aa     1                                                      0

PRO177.orf  301 GCPIPSRCPRATYPTGRRASTVRGVQLVWREEPLVGRGSREVRFAPHLGA    350

PRO108.aa     1                                                      0

PRO177.orf  351 LGHSGQGSTWPVPWVCHDVGVPPPQGLERQLRLLRRNAQLQSLGCVRGCY    400

PRO108.aa     1                                                MEN    3
                                                               ..:
PRO177.orf  401 GAIPSCRSLCDCAEKRKCPRRVGVASDECTRWWEVASVCTKRLFTRAFTS    450

PRO108.aa     4 PSPAAALGKALCALLLATLGAAGQPLGGESICSARAPAKYSITFTGKWSQ     53
                  .||..
PRO177.orf  451 VSPLL----------------------------------------------    455

PRO108.aa    54 TAFPKQYPLFRPPAQWSSLLGAAHSSDYSMWRKNQYVSNGLRDFAERGEA    103
```

Figure 5 Continued

```
PRO108.aa    54 TAFPKQYPLFRPPAQWSSLLGAAHSSDYSMWRKNQYVSNGLRDFAERGEA   103

PRO177.orf  456 ------------------------------------------------   455

PRO108.aa   104 WALMKEIEAAGEALQSVHAVFSAPAVPSGTGQTSAELEVQRRHSLVSFVV   153

PRO177.orf  456 ------------------------------------------------   455

PRO108.aa   154 RIVPSPDWFVGVDSLDLCDGDRWREQAALDLYPYDAGTDSGFTFSSPNFA   203

PRO177.orf  456 ------------------------------------------------   455

PRO108.aa   204 TIPQDTVTEITSSSPSHPANSFYYPRLKALPPIARVTLVRLRQSPRAFIP   253

PRO177.orf  456 ------------------------------------------------   455

PRO108.aa   254 PAPVLPSRDNEIVDSASVPETPLDCEVSLWSSWGLCGGHCGRLGTKSRTR   303
                                ..|||||||||||||||||||||||||||||
PRO177.orf  456 ---------------GPVPETPLDCEVSLWSSWGLCGGHCGRLGTKSRTR   490

PRO108.aa   304 YVRVQPANNGSPCPELEEEAECVPDNCV    331
                |||||||||||||||||||||||||||
PRO177.orf  491 YVRVQPANNGSPCPELEEEAECVPDNCV    518
```